July 3, 2003

ET Docket 03-104 Comments

I read with interest the proposal to use power lines as a means of delivering broadband data services to internet customers, called Broadband Over Power Line (BPL). The proposed technology would use the spectrum from 1.7MHz to 80MHz. No consideration has been given to the egregious interference this would generate to licensed users.

Amateur radio operations are by FCC mandate weak-signal in nature. As stated in the Part 97 rules, 97.313(a), "An amateur station must use the minimum transmitter power necessary to carry out the desired communications." Intentionally raising the noise floor of the HF spectrum by as much as 20dB or more implies that Amateur radio operators previously using 5W to communicate should increase their power to 500W, or a 100W link should be increased to 10kW. This is contrary to the spirit, purpose, and rules of the Amateur service, and sets a precident for bad engineering practice.

Particularly in emergency work weak-signal operating conditions are the norm. I personally carried out emergency communications using Amateur radio in the wake of the 1989 Loma Prieta earthquake, as well as the subsequent Northridge temblor that shook southern California several years later. BPL would have precluded my emergency work.

The fact that present Part 15 emission limits are too high is well known, given the extreme level of interference already generated by such radiators. For example, the bottom 40kHz or more of the Amateur 80m band has been rendered useless by both commercial and consumer power line carrier equipment operated in that segment of the HF spectrum. TCI Cable Vision and "wireless" telephone extensions, using the power lines for conducting the signals have virtually eliminated all Amateur operations there. When these devices first appeared on the band several years ago, the FCC was powerless to stop them. They will remain in service for many years to come, until their numbers diminish under the withering attack of random component failure.

Signals impressed on power lines carry quite some distance, as evidenced by the fact that utility companies already use these techniques to communicate between substations for remote telemetering and switching control. Personal experience has shown that power lines in Saratoga, CA carry significant energy from carrier current operations located at the federal pumping plant, at the northern terminus of the California Aqueduct some 40-50 miles to the northeast. There are no direct transmission line paths between these two points.

Power line carrier or carrier current signals also radiate. This is a matter of record, as noted in the Report and Order for RM-9404. Because power lines are not transmission lines at radio frequencies, public utilities and the IEEE note that the reverse situation--radiation from antennas--could disrupt PLC operations. An entire radio experimenter hobby revolves around logging and profiling the characteristics of public utility PLC systems. Reception of these signals is predominantly by propagation, not conduction. Radiation of the previously noted TCI Cable Vision and telephone extensions is readily observed in remote canyons of the Sierra Nevada and Santa Lucia mountain ranges, far from any power lines.

The FCC promises to protect licensed users of the HF spectrum from interference caused by the proposed BPL systems. This is pure fantasy. The FCC has proven a powerless enforcer in spectrum disasters such as TCI Cable Vision, 3.5MHz telephone extensions, and Pacific Gas & Electric Company interference to the HF Amateur bands. Further, in the case of PG&E, the company has shown itself completely unresponsive to interference complaints by Amateur radio operators. There is no expectation or evidence that the situation would be different for interference by BPL services.

Deployment of BPL services is bad engineering and analogous to an environmental disaster. I strongly oppose the proposed BPL systems and urge the Commission to "just say no."

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